What is the impact of beach debris?

Whenever people talk about the future they form a mental image of what things will be like. They think about themselves and the things they know about, and in their imagination build a new picture of what they can expect. As we consider the impacts of beach litter, there are a number of ways of visualizing those changes.

The Earth Systems approach to science emphasizes connections and interactions. As a pretest/posttest assessment of learning, this activity will show how much growth has occurred in such concepts through use of the materials in this volume. Knowing how natural events affect their lives, students can infer a wide range of environmental impacts in the Great Lakes, including beach debris.

Earth Systems Understandings

This activity focuses on ESU #4 (interactions of Earth subsystems).

Source

The activity was adapted from "What Great Lakes factors will increase and what will decrease as a result of global warming?" from *GLIMCES*, 1995. The original idea is from ZPG's *More or Less* game.

Materials

- blank wall, chalkboard or bulletin board
- 1 card labeled BEACH LITTER
- 20 cards labeled MORE (light color, such as yellow)
- 20 cards labeled LESS (same color)
- 35-40 impact cards with things that could change as a result of beach litter (contrasting light color, such as green)

Objectives

After completion of this activity, students should be able to

- List and explain many potential impacts of beach debris.
- Discuss various interpretations of the possible debris impacts.

Procedure

1. Gather or construct the materials listed. Before beginning the activity, create impact cards (factors or activities which could be affected by beach debris). These impact cards should include both scientific impacts and social impacts (focus on things that can go up and down). Some possible impact cards might include those listed on the next page.

2. Make a large card that says BEACH LITTER and tape it in the center of a blank wall. Make a stack for MORE cards and a stack for LESS cards. Spread the impact cards out over a large table so most of them can be seen at one time.

3. Invite students to come forward one table or row at a time and select an impact card which they feel is the direct results of a previously mounted card. They should then select either a MORE or a LESS card to indicate whether the result would be an increase or a decrease. Students must be able to justify the position of the cards they add, and their choice of MORE or LESS impact.

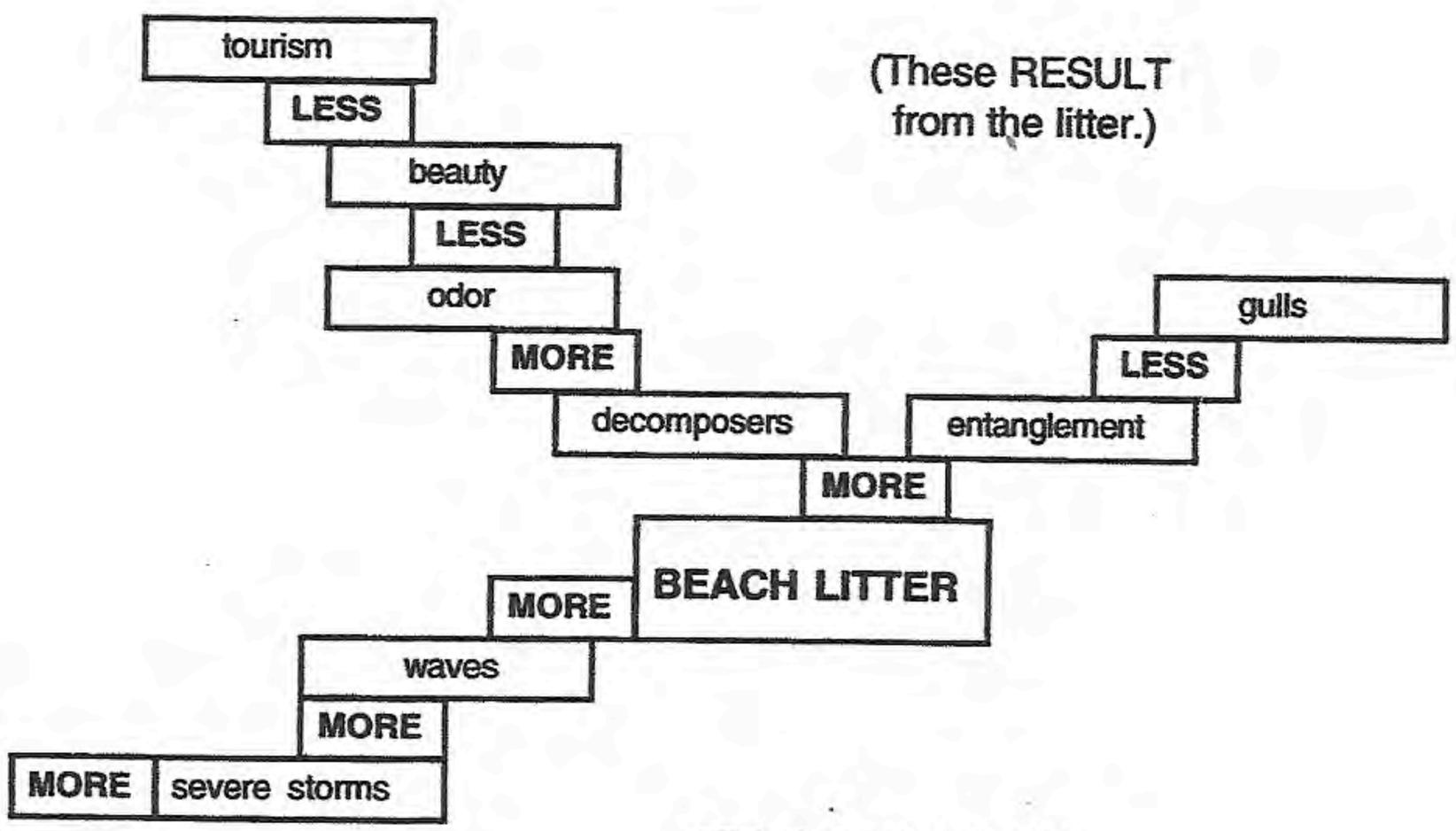
4. As students use these cards, it will become apparent that there are various interpretations of the impacts. Have the class discuss all interpretations.

5. Assessment can be done by having each student select a chain of 8 cards, diagram them in a portfolio, and give a possible interpretation of the links illustrated.

MAKE CARDS FOR THINGS THE GREAT LAKES REGION MIGHT HAVE "MORE OR LESS" OF WITH BEACH LITTER, SUCH AS THESE FACTORS:

Shipping	Cooperation	Law	Longshore Current
Odor	Shoreline Development	Water	Waves
Shoes	Injuries	Entanglement	Severe Storms
Smoking	People	Pollution	Tourism
Biological Diversity	Oxygen	Sun	Fishing
Gulls	Ugliness	Plastic	Beauty
Recycling	Biodegradation	Decomposers	Swimming

A SAMPLE OF HOW THE GAME MIGHT PROCEED:



EXTENSIONS AND ALTERNATIVES

This activity can also be used at various stages of a unit. For instance, it can introduce a new topic and related it to previous ones, or it can be a culminating activity to draw all aspects of a study together. In addition it would be an interesting evaluation to take a Polaroid photo of the concept map created at the beginning of a unit and compare it with the map produced at the end. Some teachers use this as a small group activity with 3x5 cards. Groups can prepare a written or oral presentation of their maps, analyzing the thinking about interrelationships that produced the array.

[NOTE: This activity can be done on a sandy beach if there is not much wind. We used old corrugated cardboard and stood the cards up in the sand. Don't forget to remove the materials when you finish!]